SHRINKING FARMLAND IN VAUGHAN: THE CAUSES, CONSEQUENCES AND POTENTIAL SOLUTIONS

By: Tahmid Khan

Supervised by: Rod MacRae

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Foreword

This major paper is the result of my plan of study and serves as a conclusion to my academic career within the planning stream of York's Environmental Studies graduate program. Throughout this 2-year plus process, I have gained knowledge regarding the planning field that allowed me to not only meet the program requirements for planning – thereby obtaining Ontario Professional Planners Institute (OPPI) recognition – but has also allowed me to explore and critique ongoing planning processes in my hometown of Toronto and the rapidly developing suburbs surrounding it. This includes debates surrounding marginalization of poor and racialized communities within the planning process, the neo-liberalisation of "green" efforts/movements and finally, the important debate between increasing conservation or loosening protection legislation to allow expanded development. Focusing my area of study on land use within the Greater Toronto Area allowed me to analyse all said debates, be they opposition from groups such as the Building Industry and Land Development Association or the Ontario Real Estate Association to the province's Greenbelt initiative, the way conservation groups routinely fail to engage poorer or racialized communities and finally how certain conservation advocates attempt to establish so-called "green projects" as protection from developers. Additionally, analysis of these debates allowed me to meet my learning objectives of examining the urbanization process and its effects, how land can be used sustainability for multiple purposes and finally the way in which urban, environmental, and food planning is implemented. Overall, York's multidisciplinary approach to planning has allowed me to become a more well-rounded planning candidate by exposing me and other students to varying viewpoints regarding planning issues while also allowing me to explore themes and topics I find critical and interesting.

Abstract

In this paper, I analyze provincial environmental laws and the city of Vaughan's policies, aspirations and actions as it relates to the topics of development and conservation, to determine if they aid or hinder the preservation of valuable farmland. I begin by explaining the importance of farmland in terms of the province's economy as well as its fight against climate change. Then, I detail the extent of agricultural land loss in Vaughan while examining the causes, specifically the compromises found in conservation legislation. I argue that Ontario and Vaughan's attempt to pacify developer concerns regarding conservation regulation such as the *Greenbelt Act, 2005*, has led to holes in protection that were exploited by developers to continue the construction of unsustainable low-density housing and aggressive aggregate extraction. The key issues discussed in the paper are the province's density targets, infrastructure and aggregate mining loopholes and the re-designation of lands that were previously protected under Greenbelt legislation. I, then, continue by exploring potential solutions to these issues, including the expansion of the Greenbelt to incorporate farmlands found in towns such as Vaughan and Barrie, the creation of a fixed urban boundary zone, and refined density targets that promote more compact development. The paper concludes by examining the topic of urban agriculture and how it can be implemented in conjunction with other proposed solutions to grow agriculture in the city despite heavy (sub)urbanization.

1. Introduction, Methodology and Context

Introduction

When it comes to desirable natural resources, soil for agriculture is typically not given as much thought and value as mineral resources. However, with increasing desertification many

nations are recognizing the importance and value of nutrient rich soil. An example of this would be how certain Gulf states such as Saudi Arabia and Oman are investing heavily in acquiring farmland from more fertile countries in sub-Saharan Africa e.g. Sudan. In total, these gulf nations bought over 370 thousand hectares of land for food production (Deininger et al., 2011).

This growing recognition is not limited though to countries experiencing large-scale desertification. Nations such as the United Kingdom and Canada – identifying the importance of food security, potential economic benefits and the role agricultural lands in the fight against climate change – have implemented farmland protection initiatives to limit their conversion to urban development. Ontario has been rather proactive in protecting its agricultural lands with the passing of the *Greenbelt Act* in 2005. This act protects 1.8 million acres of mostly farmland – around 63% of Southern Ontario's Greenbelt is comprised of lands that are used for agricultural purposes – though it also contains passages related to the protection of ecological lands and hydrological features such as wetlands (Ontario, Government of, February 2005).

However, there are many aspects of the *Greenbelt Act,* 2005 that are open to criticism, especially when you consider not only the resulting *Greenbelt Plan* but also interacting and associated provincial legislation and plans such as the *Places to Grow Act*, 2005, *Growth Plan for the Greater Golden Horseshoe* and the *Provincial Policy Statement, 2014*. That combined with the lukewarm compliance with these relatively recent environmental laws by certain rapidly urbanizing municipalities – especially those whose borders cross into the Greenbelt – has resulted in an uneven implementation that hinders the conservation efforts of the Greenbelt initiative while doing nothing to prevent development on agricultural land just outside of protected areas.

The goal of this paper is to examine provincial environmental legislation and municipal policies, aspirations and attitudes regarding development and conservation to determine if they aid in the preservation or contribute to the loss of valuable agricultural land in Southern Ontario. The city of Vaughan was specifically chosen as the research area because it is a region with high rates of urbanization and large concentrations of farmland and ecological lands, some of which are protected as parts of Ontario's Greenbelt – including the Oak Ridges Moraine. This combined with Vaughan's history of vocally favouring development in the face of environmental legislation or provincial decision – e.g. The GTA West Corridor – makes it a suitable location to explore the issues mentioned above.

This paper will conclude by providing processes and policy recommendations flowing from the Vaughn case that could be adopted to allow for further protections of agricultural lands or mitigate their loss. Potential solutions examined include: strengthening provincial environmental legislation, adoption of smart growth principals and practises at the municipal level and the incorporation of urban agriculture by the city of Vaughan. Those solutions are examined to determine their benefits and downsides as well as their appropriateness in the context of Vaughan's circumstances.

1.1 Methodology

Before delving into the specific methodologies, it is important to note that the purpose of this research is not to find evidence of 100% conservation on the part of the city or the province but rather to see if the actions of Vaughan's city council or the province's various ministries are consistent with the goals and principals set out in their official planning documents. The analytical lens that I will be applying when going through these provincial and municipal planning documents are Smart Growth, – an urban planning theory that combats sprawl by

concentrating growth in compact urban centres (Blais, 2014), New Urbanism, an urban design movement which promotes walkable neighbourhoods to limit environmental impact (Blais, 2014), and an agricultural land quality lens.

The reason for choosing this approach is because both Ontario's growth plan and Vaughan's official plan make mention of these principals. Through the explicit naming of Smart Growth in the case of the Ontario's *Growth Plan* (Ontario's Ministry of Infrastructure, 2016) or by the constant mention of creating "compact urban forms" that limit the impact of development, in the case of Vaughan's most recent official plan (City of Vaughan, 2010), these documents establish the frameworks by which to evaluate their performance. Farmland value will be determined using the Canadian Land Inventory system which classifies agricultural land from 1 to 7 based on the ability of that land to grow crops (Agriculture and Agri-Food Canada, 2013). Class 1 to 4 lands are recognized as the most desirable and valuable because of their ability to grow crops with little to moderate use of specialized equipment and practises.

Data were collected through a combination of document analysis and expert interviews. Regarding applicable provincial legislation, analysis involved going through relevant acts and plans to discern if sections run contrary to their stated goal of preservation and sustainability, i.e. loopholes that allow certain types of development. The legislation themselves were critically analysed to determine if wording in the documents is exclusionary, incomplete or if they create a perception of conservation that enables sprawl. Relevant pieces of legislation include *the Oak Ridges Moraine Conservation Act, 2001* and plan and more importantly *The Greenbelt Act, 2005* and plan. Other important documents include the *Provincial Policy Statement, Places to Grow Act, 2005,* and *the Growth Plan for the Greater Golden Horseshoe*. Additionally, articles and analysis from experts on Ontario's Greenbelt including Laura Taylor – *Landscape ideology in*

the Greater Golden Horseshoe Greenbelt Plan, 2013 – and Liette Gilbert – *The Oak Ridges Moraine Battles, 2013* – were incorporated to demonstrate the issues with the Greenbelt and its associated legislation as they are currently written and interpreted.

As for data dealing with municipal conservation and agricultural matters, information was obtained by reviewing Vaughan's policies, mainly those relating to land-use, development and planning. This allowed me to examine whether the city of Vaughan is committed to the conservation of certain lands – in this case agricultural land – in the face of the city's rapid urbanization. Outside of municipal documents such as the city's Official Plan, relevant votes and press releases were examined to give an overall sense of city council's attitudes when it comes to conservation as well as highlight any issues council has with the provincial or regional governments.

In addition, interviews were requested of developers and environmental groups to get their perspectives on the city's by-laws and attitudes concerning development and conservation. Those contacted included both conservation and development groups with connections to the city of Vaughan through involvement in development projects within the city or through vocal opposition to planning decisions made by council that could be adversely affecting conservation efforts (York Region Environmental Alliance (YREA), Sustainable Vaughan, Environmental Defense and the Toronto Region Conservation Authority (TRCA)). Similarly, the following developers and development advocacy groups in the region were contacted to get their opinion on council decisions and the Greenbelt: Treasure Hill, Mason Homes, Caliber Homes, Milani Group, and the Building Industry and Land Development Association (BILD). Likewise, farmers and nearby urban agriculture advocates were contacted to get their views on how agriculture has been affected by development in the region, as well as determine their wants in terms of policy

and strategies to aid farming in Ontario: Round the Bend Farm, Pine Farms Orchard, Toronto Urban Growers, Young Urban Farmers, Toronto Community Garden Network, Backyard Urban Farm Company and the Ontario Federation of Agriculture (OFA).

Despite the substantial number of organizations approached very few responded and even fewer answered the questions emailed. Both Sustainable Vaughan and Environmental Defence initially agreed to an interview but did not respond to further inquiries. The YREA and TRCA provided documents that demonstrated their analysis on the effects of development on ecological/agricultural lands but were unable to provide answers to the questions given. Perplexingly, one organization emailed back a set of answers but refused to sign the participation forms, although the information provided in these answers led to other usable information from other sources. Regarding interviews with farmers, only Round the Bend Farms responded but regretfully could not provide answers to the questions because of time constraints. Thankfully, the OFA provided the Ontario government with a list of desired policy and legislative changes for the 10-year Greenbelt and growth plan review. This document makes clear what farmers want implemented to aid food producers and the communities who are reliant on agriculture.

Specific articles from reporters who are familiar with the development process in Vaughan were also analyzed. One such individual is the Toronto Star reporter Noor Javed. She has been covering issues pertaining to development and Ontario's Greenbelt for many years and has published multiple articles relating to conservation and development within Vaughan. This includes articles examining the relationship between city council and developers as well as the city's staunch support of the GTA West Corridor; a highway project that would develop protected lands within the Greenbelt. Javed's unique position as a reporter outside of the pro or

anti-development camp provides unique understandings of Vaughan's planning decisions and their consequences.

In addition, data regarding sustainable development practises and strategies was analyzed in pertinent journal articles as well as local and international examples. The major sustainability strategy examined within this project, outside of legislative reforms, was the incorporation and promotion of urban agriculture within Vaughan, this to mitigate the loss of agricultural lands inside the city. Works by Joe Nasr and Rod MacRae – *Could Toronto provide 10% of its fresh vegetable requirements from within its own boundaries?* – and other urban agriculture and food planning documents were studied to devise the most appropriate urban agriculture plan for Vaughan and its residents.

1.2 Understanding the Importance of Agricultural Land in Ontario

Before diving into specific legislation and plans, it is important to explain why agricultural lands in Ontario are a resource worth conserving. The first reason is economics. Ontario generated $22 billion in 2009 from agriculture, and this does not include its contributions to Ontario's food and beverage processing sector estimated at around $34 billion in the same year (Ontario Federation of Agriculture, 2011). That number grew to 37.5 billion in 2016 (Cruickshank, 2017). Revenue from grape and tender fruit production for wine and cider – as well as the sales of the alcoholic beverages themselves – generated $395 million in 2014 alone (Wine Marketing Association of Ontario, 2015). This does not include revenue from activities such as wine tours which are highly profitable for the region.

Additionally, farmland in the south of the Province is some of the most economically productive anywhere. For example, in 1996 Vaughan's farmland generated $1,308 per acre,

more than nearby Markham and King City in terms of revenue generation despite having less agricultural land overall (City of Vaughan, 2008). That, combined with the fact that many communities in Southern Ontario are dependent on the agricultural industry for employment both directly and indirectly, means that the loss of such lands could negatively impact Ontario's overall economy. Agriculture is so important to Ontario's economy that the province states in Section 5 of the *Greenbelt Act*, 2005 that the reason for the creation of the act is "…(b) to sustain the countryside, rural and small towns and contribute to the economic viability of farming communities; (c) to preserve agricultural land as a continuing commercial source of food and employment; (d) to recognize the critical importance of the agriculture sector to the regional economy…" (Ontario, Government of, February 2005).

The second reason to conserve agricultural land is scarcity. Canada as a nation has very limited quality arable lands considering its size. In fact, 8% of all Canadian farmland are in Ontario. More importantly though, 52% of all Canadian class 1 agricultural soil – the very best soil for growing crops – is also located in the province; much of it situated in the southern half (Environment Canada, 1982). This, combined with the fact that Southern Ontario's climate is also highly favourable to agriculture – it has an agro-climatic index of over 3.0 – makes the farmland in the region some of the most productive in Canada (Environment Canada, 1982). This unique combination of soil and climate has also resulted in many specialized horticultural operations in Southern Ontario, including vineyards and greenhouses that grow tomatoes and many horticultural crops (Environment Canada, 1982).

Lastly, the ecological benefits of agricultural lands in the region are significant. A report published by the David Suzuki Foundation found that farmland in Ontario's Greenbelt provides a host of services not linked to agricultural production such as sediment retention, nutrient cycling,

and carbon banks, an important service that aids in climate regulation (The David Suzuki Foundation, 2008). In the Greenbelt, it is estimated that agricultural lands provide around 263.3 million dollars yearly in ecosystem services – if given a market value; 329 million dollars if cultural benefits such as hiking, and camping are included (The David Suzuki Foundation, 2008).

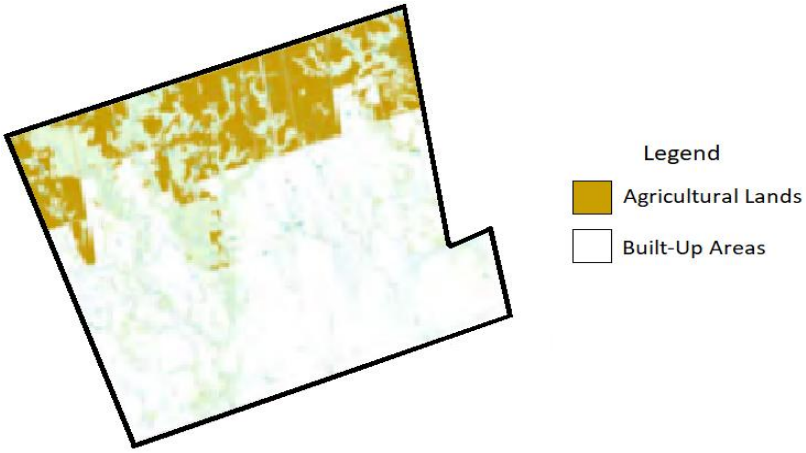
1.3 Current Threats to Agricultural Lands in Vaughan

Progression of Farmland Loss in Vaughan

The biggest threat to agricultural lands in Vaughan is (sub)urbanization, a process characterized by a shift from agricultural economic and cultural activities to a variety of social, economic and landscape characteristics, e.g. low-density housing and shopping plazas. In the context of Canada and the province, this process is neither uncommon nor new. Large scale urbanization began in the early twentieth century and Canada is one of the world's most urbanized countries with over 80% of its residents living and working in (sub)urban centres (Statistic Canada, 2011). The percentage is even higher in the province of Ontario, where 86% of its residents live in cities and their suburbs (Statistics Canada, 2011).

However, when looking specifically at Vaughan, the rate of (sub)urbanization has been much quicker than the rest of Ontario or Canada. Currently, much of Vaughan lands are comprised of developed lands or "built-up" areas, with less than 20% of lands in the city used for agriculture and related activities, an impressive change given that much of Vaughan's lands were agricultural less than 50 years ago. This shift was spurred by explosive population and economic growth, following a model adopted by the province and municipality. This trend is continuing

and is expected to further diminish the scant agricultural lands left unprotected by the Greenbelt Act, 2005.



Projected Available Farmlands in 25 years
URBAN STRATEGIES INC.

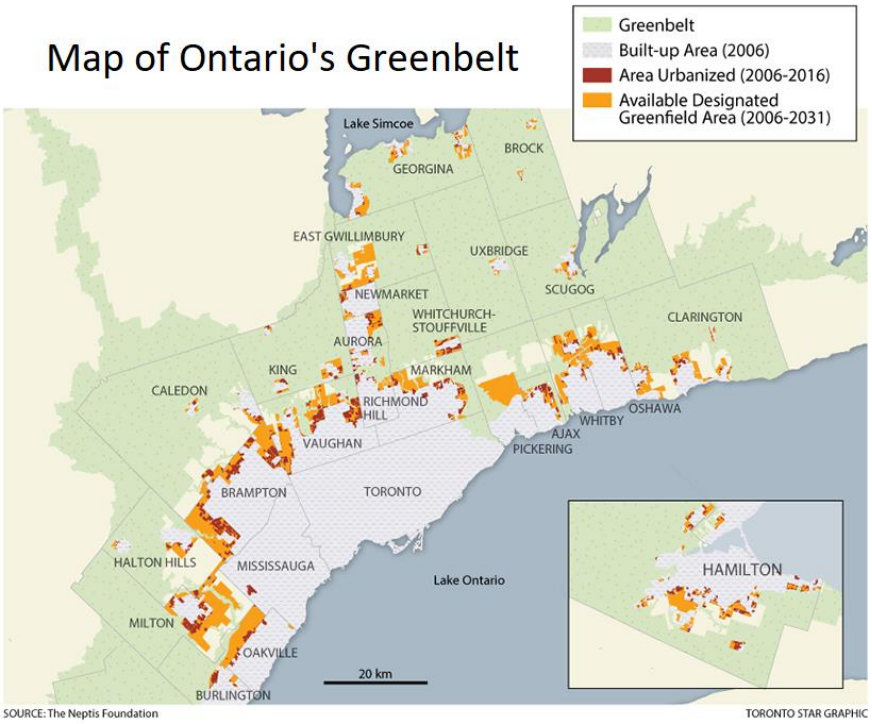
In fact, there has been a recent boom in development projects with tens of thousands of homes built because of projected population growth (Blais, 2014). Southern Ontario's population is expected to reach 13.5 million by 2041 (Ontario's Ministry of Infrastructure, 2017) and most of that population growth will be absorbed by large urban and suburban city centres located in the Greater Toronto Hamilton Area – including Vaughan (Hemson Consulting Ltd., 2012).

2. Document and Policy Analysis: How Current Municipal and Provincial Policies, Decisions and Understandings Have Failed to Secure Farmland

2.1 How Provincial and Municipal Policies Allow Infrastructural Development on Protected Lands

The *Greenbelt Act*, 2005 and the *Greenbelt Plan*, as well as other associated provincial and environmental legislation have limited the amount of private housing developments to a noticeable degree, a fact that is constantly brought up by the Building Industry and Land

Development Association (BILD) and Ontario Real Estate Association (OREA) (Artuso, 2017). An example of that would be how the plan handles development in areas designated as rural such as the north of Vaughan. The *Greenbelt Plan* states that one of the functions of the Greenbelt is to retain the character and functions of rural and agricultural communities and as such "…subdivision, condominium or severance, shall not be permitted in rural areas" under Section 3.1.4.5 (Ontario's Ministry of Municipal Affairs and Housing, 2017). This, combined with the fact that Section 3.4.2.1 of the plan (Ontario's Ministry of Municipal Affairs and Housing, 2017) prevents settlement areas outside of the Greenbelt from expanding into it has meant that large-scale residential developments are effectively absent from the Greenbelt outside of very particular cases, one of which will be examined in Section 2.2 of this paper as it involves the municipality of Vaughan and the development of townhouses.



With that said, the *Greenbelt Plan* as well as the *Greenbelt Act*, 2005 do permit developments that are detrimental to agricultural lands and communities, e.g., the development of infrastructure such as freeways and roads as well as aggregate mines and pits. The reasons are related to the province wanting to promote economic growth, and that means the construction of roads to connect various economic hubs and make trade easier as well as the extraction of aggregate to sustain the construction boom that Ontario is currently experiencing.

2.1.1 Aggregate Mining

While presently there are no aggregate pits within the limits of Vaughan – the nearest one is the White Rose Pit located in nearby Richmond Hill – it is an important topic to analyse as it demonstrates the key failures of provincial conservation efforts, especially when referring to agricultural lands. Additionally, there have been failed attempts to open aggregate pits within Vaughan, the most well-known being Maple Gravel Pit proposed by Rizmi Holdings Ltd (NewMarket Era, 2009). Under current environmental legislation, agricultural lands are particularly vulnerable to industrial development as language around their protection is both vague and demonstrates lesser conservational importance compared to ecological features such as forests and other specified hydrological features such as wetlands. Farmland essentially is singled-out for aggregate mining and other provincial projects since it is permissible to do so on such lands under current regulations and because rehabilitation is not always needed due to the vagueness in language within these environmental documents as it relates to that issue (Ontario Federation of Agriculture, 2016). Cost is another factor. As Greenbelt lands have lost 70 percent of their value, its more cost effective to develop on such lands (Murray, 2011).

For example, the *Greenbelt Plan* states in the Non-Renewable Resource Policies section that aggregate operations are allowed if they are consistent with the *Provincial Policy Statement*,

2014 (Ontario's Ministry of Municipal Affairs and Housing, 2017). This allows aggregates on agricultural land located in areas designated as countryside or for specialty crops if there is "…rehabilitation of the property back to an agricultural condition…" (Ontario's Ministry of Municipal Affairs and Housing, 2017). However, in the same section it states that rehabilitation is not required if the rehabilitation process is considered unfeasible and if alternative locations are considered unsuitable. This is further reiterated in the *Provincial Policy Statement, 2014* under Section 2.5.4 (Ontario's Ministry of Municipal Affairs and Housing, 2014) and Section 4.2.8.3 of the *Growth Plan for the Greater Golden Horseshoe* (Ontario's Ministry of Infrastructure, 2017).

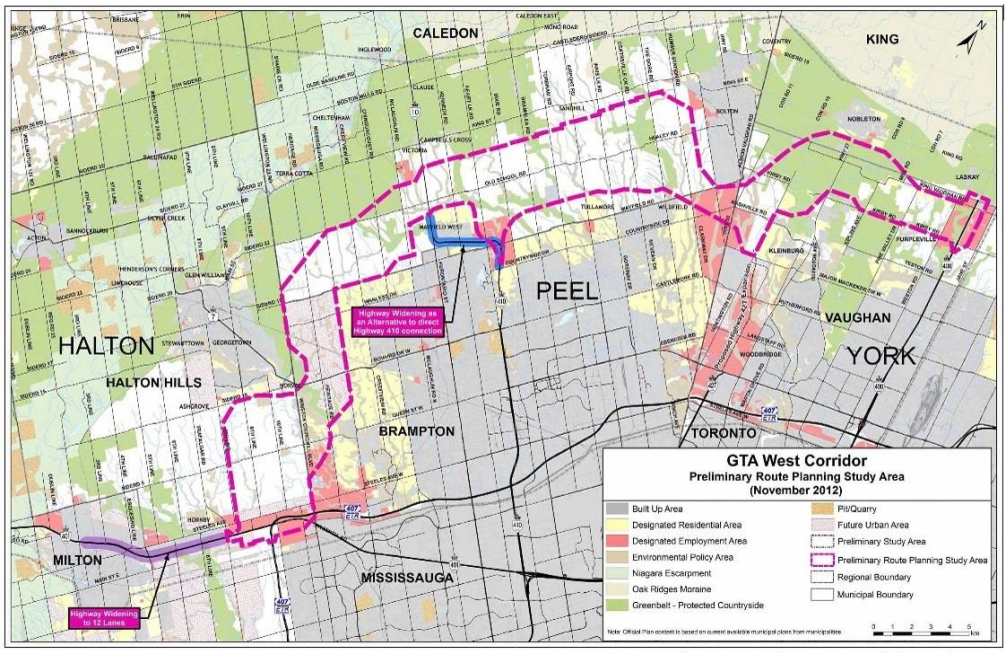
Another potential issue regards who makes the determination of whether a site is suitable for rehabilitation. Ultimately, this is decided by the Ministry of Natural Resources and Forestry who under the *Aggregate Resources Act* is the lead ministry responsible for regulating aggregate pits and quarries (Ontario, Government of, 2017). However, the ministry's decision is based on information and conclusions drawn from an environmental assessment (EA) – which is regulated by the Ministry of the Environment and Climate Change – or a feasibility study which is typically the responsibility of the mine proponent or developer (Ontario's Ministry of the Environmental and Climate Change, 2016). They are responsible for identifying and implementing the necessary steps to make a development environmentally acceptable. This creates an awkward situation in which a developer is essentially tasked to find reasons to not move forward with their proposal despite their economic interests. The province attempts to keep these developers "honest" as it were, through the inclusion of public consultations, expert analysis from relevant academics and scientists as well as the possibility of a more stringent individual EA which requires the Ministry of the Environment and Climate Change approval

(Ontario's Ministry of the Environmental and Climate Change, 2017). However, the final assessment is compiled by the proponent to highlight their conclusions based on the findings from their experts.

It should be noted that the ministry encourages municipal planning authorities to identify, separate and/or otherwise protect sensitive land uses through methods such as city official plans (Ontario's Ministry of the Environmental and Climate Change, 2016). Similarly, the ministry encourages feasibility studies to be the responsibility of municipal authorities with associated costs being paid by the proponent. All this makes the assessment process more detailed and substantive, though in the end it is up to the municipality to decide whether they will listen to the province's encouragements.

Additionally, there is no mention of the length of time for this rehabilitation process, meaning that discretion for the matter is in the hands of the involved companies. For example, John Scherer of the Highland Companies – the company that proposed the so-called mega quarry in Southern Ontario – said in an interview with Steve Paikin that rehabilitation of an aggregate mine could take upwards of a hundred years (Paikin, 2011). That is problematic as there is no guarantee that these aggregate mining companies would be in business long enough to meet their legislative duties for rehabilitation. Not to mention the 100 years the land will be out of food productions.

2.1.2 GTA West Corridor



GTA West Corridor Environmental Assessment Study | November 2012

Outside of aggregate extraction, the other major development that occurs in the Greenbelt is road construction and maintenance. Section 1.2.2.5 of The *Greenbelt Plan* states that one of its goals is "Support for infrastructure which achieves the social and economic aims of the Greenbelt and the proposed Growth Plan while seeking to minimize environmental impacts…" as it is important to the "economic well-being, human health and quality of life in southern Ontario and the Greenbelt." (Ontario's Ministry of Municipal Affairs and Housing, 2017). While this section of the plan can prove to be useful to farming communities as it allows the maintenance and updating of infrastructure critical to farming operations, it may allow the destruction of protected agricultural land for perceived economic benefits.

An example of this would be the recently halted GTA West Corridor. Announced in response to the *Growth Plan for the Greater Golden Horseshoe*, 2006's call for connected urban growth centres and the easing of traffic, the GTA West Corridor was controversial from the

beginning. The major reason was because the construction of this proposed 4 to 6 lane freeway connecting North Vaughan to Milton would cross and pave over around 2,000 hectares of prime farmland (Javed, 2016). The problems with this highway are numerous. Not only are protected lands being destroyed but its construction runs contrary to the Province's stated smart growth principals and climate regulation goals. Firstly, while the loss of two thousand hectares of an estimated 458,000 hectares of farmland – around 0.437% – seems miniscule, the fact that land is being taken out of this environmental protection framework without being replaced – the province has expressed its desire to expand the Greenbelt in 2016 but that has yet to be finalized – means that the Greenbelt is shrinking, thereby compromising the Greenbelt's ability to achieve the goals set out by the province of Ontario including the promotion of agriculture and the preservation of farming communities.

This contraction based on this one event is admittedly small but combined with aggregate extraction operations and land re-designation loss of land increases. The cause for concern then becomes the effects of these small contractions over a period of decades as the city of Vaughan and the region expands in terms of population and built area. As new communities and (sub)urban centres pop-up, and the need for building material and road links increases, it is possible that new infrastructural developments approved to address said needs will further chip away at the Greenbelt at a much higher rate than currently (Environmental Defence, 2016).

Secondly, the loss of agricultural lands from these developments runs contrary to Ontario's strategy to address climate change. The province recognizes in Section 3 and 4 of its 2016 *Climate Change Action Plan* that the preservation and expansion of the Greenbelt – and agricultural lands within it – is instrumental in climate regulation (Ontario, Government of, 2016). This is because agricultural soil limits the amount of carbon being released into the

atmosphere by trapping it, thereby lowering Greenhouse Gas (GHG) emissions (Ontario, Government of, 2016). Therefore, it would be counter intuitive to remove farmland without at the very least compensating for that loss by replacing the developed lands. It should be mentioned that soil management is another critical aspect in the regulation of climate change and its effects. Current conventional soil management does little to aid GHG mitigation, however, reducing the use of petrochemicals in farming would help in managing GHG levels (Doran, 2003).

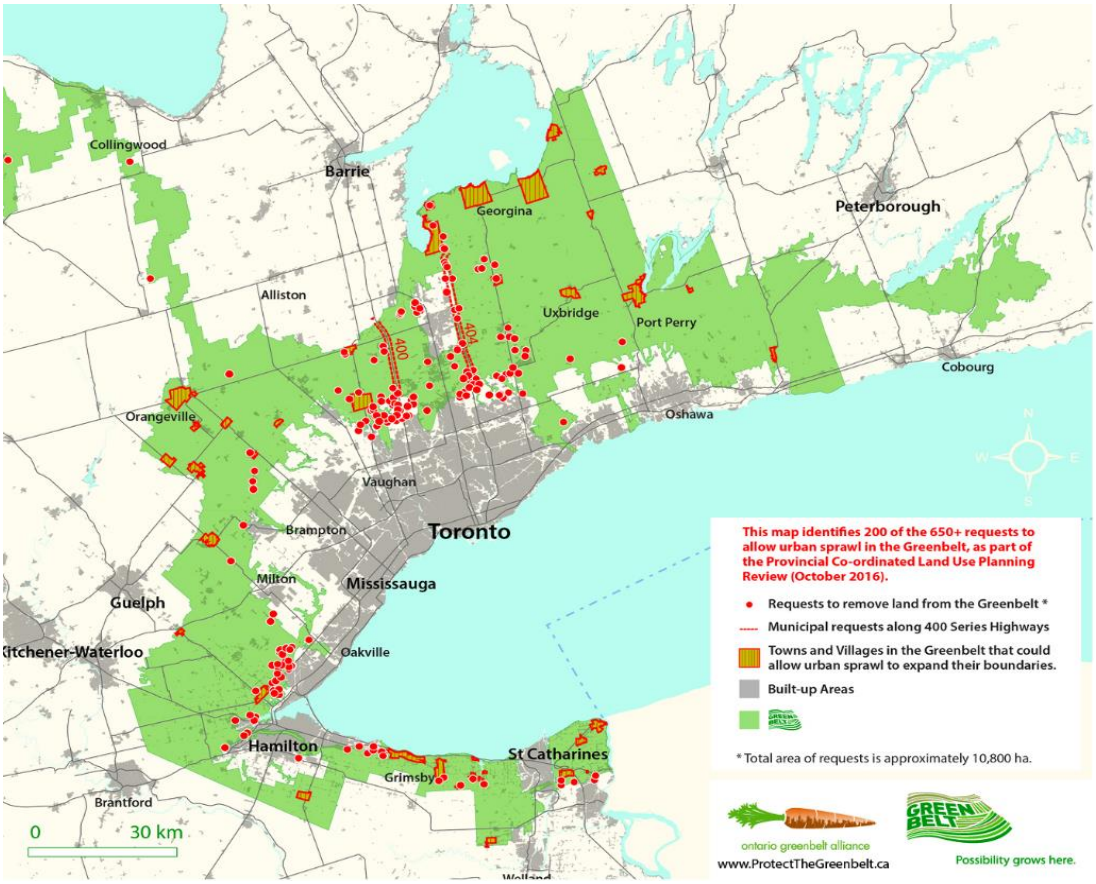
Lastly, the investment in and vocal support for traditional road networks such as the GTA West Corridor over transit infrastructure is puzzling considering how transit-oriented and conscious the province – refer to Section 3.2.3 of Ontario's *Growth Plan* (Ontario's Ministry of Infrastructure, 2017) – and the city of Vaughan – refer to Goal 5 in Section 1.5 of *Vaughan's Official Plan* (City of Vaughan, 2010) – portray themselves. As previously mentioned, Ontario's Growth Plan and Vaughan's Official Plan are influenced by Smart Growth and New Urbanism. This typically involves the promotion of compact, walkable and transit accessible neighbourhoods and communities to combat car dependence – and in turn GHG emissions – and ecological land loss. The construction of the GTA West Corridor is a return to a previous planning paradigm that favoured commuter communities/culture or traditional (sub)urbs, a paradigm that has been linked to the creation of sprawl – defined in this case as "dispersed metropolitan structures" (Cadieux & Taylor, 2013) – and high-carbon use communities.

In addition, these road networks allow the creation of (ex)urbs or exurbia. As road networks permit potential commuters to easily travel between home, work and leisure activities, new communities are created by individuals attempting to leave (sub)urban centres (Sustainable Prosperity, 2013). A major reason for this migration is because of a desire to be close to "nature"

while retaining the comforts associated with living in developed urban centres – e.g. movie theatre and supermarkets. These communities create what is known as Green Sprawl (Cadieux & Taylor, 2013). While outwardly consistent with older greenbelt communities (e.g. farming communities) based on cosmetic features such as vegetation and style of property, these are in fact reproducing many of the characteristics of (sub)urbs that result in sprawl – not to mention exclusionary racial and economic characteristics (Cadieux & Taylor, 2013). For example, these communities are comprised of low density housing which requires car access to get to entertainment and shopping hubs in nearby cities or large towns, thereby creating more GHG emissions. Additionally, residents tend to commute to workplaces to engage in jobs outside of agriculture. This means that these (ex)urban communities are distinct from other greenbelt communities and diminish the purpose of settlements within the greenbelt - which was to preserve the characteristic and economic viability of farming communities.

Presently, the GTA West Corridor project has been halted after the current provincial government suspended the environmental assessment process in December of 2015. However, the project could re-emerge as it was not formally canceled and because several municipalities – including Vaughan (Martin-Robbins, 2016) have been lobbying to restart the project for reasons related to potential economic benefits and job creation. Also, legislation around these highway developments has not changed, meaning that new construction projects like that of the GTA West Corridor could appear.

2.2 Re-designation of Protected Lands in Vaughan and Government Complicity



As mentioned above, land re-designation is a source of farmland and ecological land loss. While the amounts so far have been low – the Province only recently re-designated 58 hectares of Greenbelt lands for development out of a possible 10,800 hectares (Werner, 2017) – there is concern that overtime these small readjustments will grow into significant changes that will shrink the Greenbelt considerably (Environmental Defence, 2016). This is especially true if a development friendly political party – such as Patrick Brown's Progressive Conservatives – or municipal council comes into power. In the case of Vaughan, we can see the effects of a developer friendly city council on protected lands.

Since the city of Vaughan elected a new city council in 2014, there has been a push by counsellors to sanction land for development and some – including MP of King-Vaughan Deb Schulte – have even argued that council has become vocal lobbyists on behalf of the development industry (Javed, 2016b). During the 10-year co-ordinated review of Ontario's *Growth Plan* and *Greenbelt Plan*, Vaughan's newly elected council submitted 15 requests for land re-designation on behalf of landowners, some of whom are developers (Javed, 2016b). The Province accepted just two of those requests. However, the more interesting examples of governments enabling development on protected lands involve Lucia and Cam Milani and their respective companies.

2.2.1. Rizmi Stone & Aggregates

In the Lucia Milani and the Rizmi Holdings Limited example, the lands in question are situated between Dufferin and Bathurst streets in the northern third of the city, and span 40 hectares (Newmarket Era, 2009). Currently used as a gravel pit to store aggregates – view above image – Lucia Milani on behalf of her company applied to have the land re-zoned from agricultural to allow residential units. However, as the land in question came under the *Oak*

Ridges Moraine Conservation Act, 2001 and the *Oak Ridges Moraine Conservation Plan* in 2002, her applications were halted. This prevented her from developing on the lands and prompted a $150 million lawsuit against the city. The city was the target of the lawsuit because under the *Oak Ridges Moraine Conservation Act, 2001*, municipalities could designate said lands as transitioned – which would allow her applications to proceed – if zoning applications were submitted to council before the passing of the act (Newmarket Era, 2009).

Originally Vaughan decided to fight the lawsuit, but after losing 3 different cases and appeals, both sides decided to work together to develop a solution in 2012 (Newmarket Era, 2012). Eventually, they asked the Province to resolve the land dispute. That solution was announced by the Province in early 2015; after a new council was elected in the latter half of 2014 and after former Deputy Mayor Michael Di Biase wrote to the Province arguing in favour of Lucia Milani's position (Javed, 2016b). The Province issued a rare ministerial order which allowed the development of low density housing on the disputed site, if Lucia Milani and her company "…withdrew their application for an aggregate licence to allow extraction of sand, gravel, clay, earth and bedrock from the site" (Javed, 2016b). Many have criticized the decision as failing to hold Vaughan's development industry to account and Toronto Counsellor and Toronto and Region Conservation (TRCA) Chair Maria Augimeri even stated that the Province must do all it can to assure that "rogue" municipalities comply with environmental legislation and the Province's conservation goals (Javed, 2016b).

2.2.2. 230 Grand Trunk Avenue

The arguably more egregious case of government empowering developers to convert protected lands is the case of an 11-acre plot of land known as 230 Grand Trunk – pictured above. This example demonstrates how lenient the city of Vaughan can be with developers, in this case Cam Milani – son of Lucia Milani – and his company Dufferin Vistas. Originally, the proposed Grand Trunk development site was off-limits to development because it sits on Greenbelt lands located in the Maple borough of Vaughan (Javed & Martin-Robbins, 2016). At one point the site had additional protection from the city through open space and environmental designations (Shochat, 2016). These protections lasted until 2015, at which point conservation efforts took a negative turn.

The previous owner of 230 Grand Trunk, Eugene Iacobelli, fought the city at the Ontario Municipal Board (OMB) to develop on said lands and lost. In frustration, he illegally bulldozed trees on the site and was fined by the city. According to Sandra Racco, the city counsellor to the district on which the site resides, council approached Mr. Iacobelli to buy said land to create a park, but he refused (Shochat, 2016). After the passing of Mr. Iacobelli, his family sold the land

to Cam Milani for $4 million in 2015, at which point the city's position on the site changed. The newly elected council began supporting the development efforts of Mr. Milani (Javed & Robbins, 2016), despite Cam Milani's environmental record and attitudes towards conservation.

Mr. Milani has been a fixture of the development community in Vaughan and York Region for decades. He has been active lobbying on behalf of Lucia Milani (NewMarket, Era, 2010), pro-development interests in King City (Kelly, 2015), and against provincial attempts to increase densification/intensification targets (Milani, 2016). He has also been fined for illegally destroying trees in Vaughan (Javed, 2016c). Many, therefore, have questioned the city's willingness to work with Mr. Milani as it seems incongruent with the environmental goals set out by the Province and their city's very own official plan.

Their concerns were vindicated when it was found that the city refused to join the TRCA in fighting Cam Milani at the OMB following closed-door deliberations not open to residents or concerned advocacy groups (Shochat, 2016). In fact, former deputy Mayor Di Base, who was heading the TRCA at the time, even attempted to stop the TRCA from taking Mr. Milani to the OMB. Di Base – who resigned following a sexual harassment probe which stated he created an "…offensive work environment" (Javed, 2017) – was later found to be in breach of ethics for the use of his position "…to improperly influence' decisions on development of environmentally sensitive land (Javed, 2017b). The OMB eventually ruled to allow development on part of the lot and only after appropriate environmental assessments were conducted. With that said, many view this incident as further proof of Vaughan's willingness to compromise environmental lands to continue the developmental boom the city is experiencing (Javed, 2016b).

2.3 How current Intensification/Densification Targets and (Sub)urban Land Design hinders the Ability of the Province and the City to achieve their Stated Goals

The Ontario Federation of Agriculture (OFA) – representing over 36 thousand family farm businesses - stated in its submission to the Province for their 10-Year Co-ordinated Land Use Planning Review that some of the biggest threats to farming communities in Southern Ontario were:

1. The extraction of mineral aggregates on agricultural land – explored in Section 2.1.1
2. The continued expansion of (sub)urban boundaries unto agricultural lands through re-designation – explored in Section 2.2 – and the language and implementation of intensification and densification targets (Ontario Federation of Agriculture, 2016).

The topic of intensification and densification is one that is highly polarized with pro-development camps stating that such methods lead to less housing choices and more expensive housing relative to square footage (Building Industry and Land Development Association, 2016). Those on the other side of the debate contend that current targets are far too low to effectively protect the environment and stop (sub)urban expansion. There are elements of truth in both those arguments – for example lower costs, though it could be argued that governments subsidize the cost of living within (sub)urbs making them appear cheaper than they really are (Blais, 2014). However, examining this topic through the lens of smart growth and agricultural land quality/conservation, one can effectively conclude that the Province's approach to the intensification/densification topic is lacking.

2.3.1 Ineffective Targets and Weak Language within the Places to Grow Act and the Growth Plan for the Greater Golden Horseshoe

In addition to passing the *Greenbelt Act, 2005* the province also passed the *Places to Grow Act, 2005*. This was done to address concerns from developers and rapidly growing municipalities such as Vaughan, who felt this increase in protection for Ontario's southern Greenbelt would impact development and growth prospects as well as affect available housing for Ontarians (The Neptis Foundation, 2015). Implementing language from other similar "Smart Growth" documents, the *Places to Grow Act, 2005* states that its objectives are to consider the economy, community, environment and the "culture of conservation" when making development decisions (Ontario, Government of, June 2005). All this promotes rational and balanced approaches to development that enable sustainable growth and fosters cooperation between all stakeholders (Ontario, Government of, June 2005). The implementation of the act was set out in the *Growth Plan for the Greater Golden Horseshoe.*

The growth plan, which was meant to accommodate Ontario's growth in incoming population and associated infrastructure – and to a lesser degree soothe developer concerns – implemented intensification and densification guidelines that strived to combat sprawl by using space more effectively (Ontario's Ministry of Infrastructure, 2013). Within the built-up area of the region – specifically urban cores of major cities such as Toronto – the common strategy was to build upwards instead of outwards. This strategy is known as intensification and is supposed to account for 60 percent of all residential developments by 2031 (Ontario's Ministry of Infrastructure, 2017). This involved the construction of mid to high-rises as well as re-development of brownfields (former industrial or commercial sites). These communities were designed to be mixed-used, walkable, and traversable using active transportation such as cycling. This is typical of neighbourhoods that follow a new urbanist design structure/philosophy and are in line with the guiding principles set out in Section 1.2.1 of the growth plan (Ontario's Ministry

of Infrastructure, 2017). However, development outside the built-up area took another more traditional form.

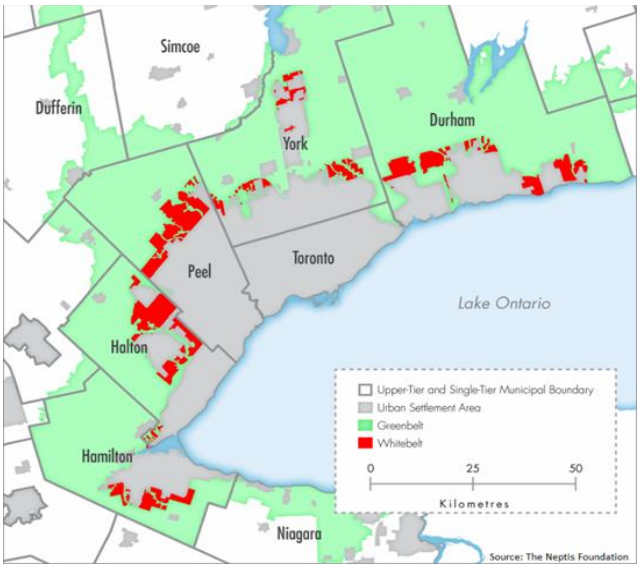
Development on these *Greenfields* – i.e. farmlands or forests – in these (sub)urban areas took the form mainly of townhouses and single-family homes. This was mostly due to public pressure from residents of certain municipalities –Markham, Newmarket, and Aurora – who were opposed to mid-to-high-rise developments (The Neptis Foundation, 2015). The compromise was that the houses would need to be closer to one another to meet density requirements. The original growth plan in Section 2.2.7.2 specified a minimum density of 50 persons and jobs per hectare combined by 2031 (Ministry of Infrastructure, 2013), while the most recent version of the growth plan has that density increased to 80 persons and jobs per hectare (Ministry of Infrastructure, 2017). While these targets might appear to be a reasonable strategy to combatting sprawl, since implementing the growth plan in 2006, Ontario lost almost 260,000 hectares of farmland in a five-year period due mainly to a combination of development and urban encroachment (Reusser, 2013).

The outcome is explained by weak language within the growth plan when referring to growth targets. The targets set out by the Province seem almost aspirational as there is no mandatory compliance requirement in either the intensification or densification targets. This also means there are no penalties if said targets are missed by municipalities (Ontario Federation of Agriculture, 2016). As such there are no incentives for these municipalities to alter their planning strategy outside of adding weak language to their official plans. This allows them to defer any major density changes until 2031 – the supposed deadline. Additionally, while this does not apply to the municipality of Vaughan, it is important to note that under Section 2.2.2.7, certain municipalities without urban growth centres can make density targets much lower (Ontario's

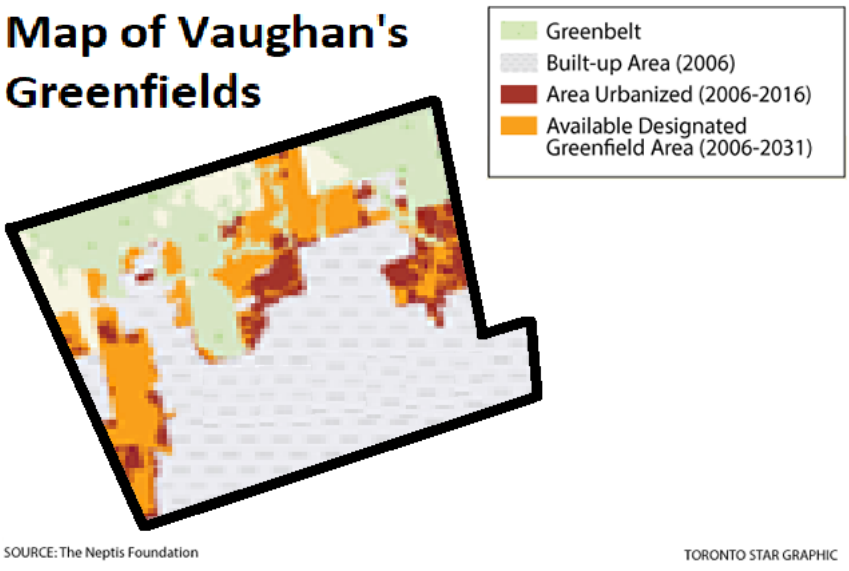
Ministry of Infrastructure, 2017). For example, Brant County's requirement is only 35 residents and jobs per hectare (The Neptis Foundation, 2015). These further highlights how compromised the provincial density targets are.

Another issue with the density targets is that municipalities can adjust or "takeout" acreage to achieve the desired density under Section 2.2.7.3. The growth plan allows for specified environmentally sensitive lands to be taken out of density calculations such as woodlands, valleys, and wetlands (Ontario's Ministry of Infrastructure, 2017). This is in addition to cemeteries, employment areas, and various provincial infrastructure such as transmission lines and pipelines. As such, depending on their calculation methods, one could get wildly different per hectare density results. In fact, in 2015 the Neptis Foundation reported that most developments in *Greenfields* do not hit the 50+ persons/jobs per hectare density goal if "takeouts" are added to the equation. They found that density results were closer to 25+ persons and jobs per hectare. This is half of the previous 50+ persons/jobs target and nowhere near the new 80+ persons/jobs target the Province set to combat sprawl.

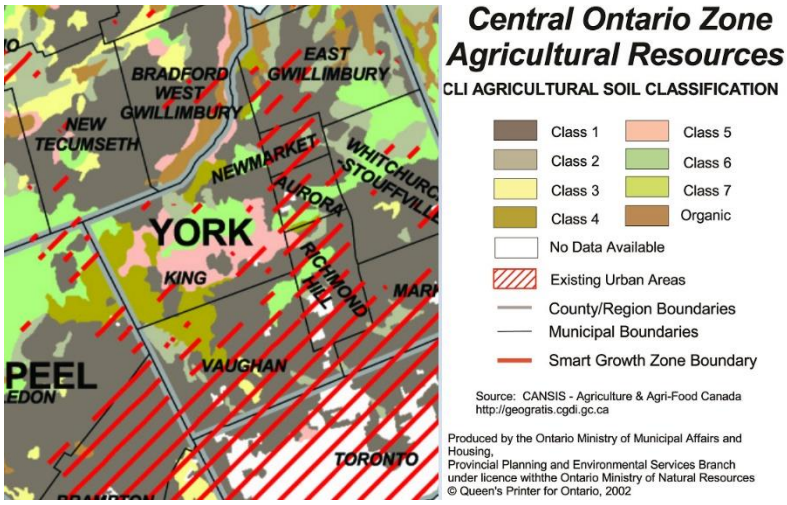
2.3.2 Development in the White-Belt



Another issue with the growth plan is that it continues to allow residential developments on agricultural land near large municipalities. While the Greenbelt currently protects a vast amount of agricultural lands in Southern Ontario, it does not encompass all agricultural lands in the region. One of the most talked about expanses of agricultural land that is not stringently protected is the strip of land between the Greenbelt and the built-up area of the Greater Toronto Hamilton Area (GTHA) known as the White-belt (see map). In terms of soil quality, the White-Belt is the same as the Greenbelt and provides many of the same benefits, which means the White-Belt is comprised of the same class 1 to 4 soils that are the most productive for farming (Swail, 2015) and provides the same ecosystem services valued at $53.3 million yearly – impressive considering that the white-belt is only 46,000 hectares. This includes services such as climate regulation (Wilson, 2013). Therefore, every acre of White-belt land is equivalent to lands found within the Greenbelt. However, despite the province acknowledging the need to preserve more agricultural lands for the benefit of farmers, agro-business and the province's fight against climate change, they have effectively endorsed the white-belt for development.



Under the Places to Grow Act, 2005 and the most recent growth plan, the white-belt is essentially a designated growth area for municipalities such as Vaughan and referred to in the legislation as *Greenfields* - defined as lands not previously used for residential, commercial and industrial purposes (Ontario's Ministry of Infrastructure, 2017). However, in the context of Vaughan, Greenfields typically refer to agricultural lands (Swail, 2015). Though the plan itself states that developments on prime agricultural lands – lands with soil classified between class 1 and 3 – are to be avoided, it allows such development when there is no reasonable alternative under Section 2.2.8.2 (Ontario's Ministry of Infrastructure, 2017). Determination of whether development is possible on said prime agricultural land is under the authority of Ministry of the Environment and Climate Change (2016) after an environmental assessment.



The problem with this is that the White-Belt is 75% percent farmland, most of which are classed as having soil within the 1 to 3 range (Wilson, 2013). That means there are extremely few alternatives. Therefore, what this passage does is all but allow the conversion of these Greenfields into housing, around 1,800 hectares in Vaughan alone. While Vaughan's *Official Plan* states in Section 2.1.3.1 that the city should identify agricultural areas in which development should not occur and states in Section 5.2.8.4 that the city should "…support the

protection of high quality agricultural soils in the long term", there is no evidence from the current city council to suggest that this is happening (City of Vaughan, 2010)

Residential development, within the white-belt and certain exceptional cases in the Greenbelt, are often justified by stating that cities need housing to accommodate growing populations. But the housing being developed is unlikely to absorb the incoming population. (Sub)urban cities – including Vaughan – are expected to grow 160% faster than the City of Toronto (Sustainable Prosperity, 2013), yet much of the housing in these communities is single or semidetached dwellings meant to house a single family (The Neptis Foundation, 2015). This means more single or semidetached buildings are required to house the increasing population. This has pushed development to the urban fringes and has led to sprawl or "dispersed metropolitan structures" (Cadieux & Taylor, 2013).

The development of lower density housing in Vaughan and similar communities is fueled by market influences and perceptions around ownership (Blais, 2014). Developers build low density housing because housing occupancy patterns show that most people live in such houses (Hemson Consulting Ltd., 2012). However, preference in housing type is often determined by perception and homebuilders have been active in promoting the idea that single or semidetached are more desirable because of the space and comfort they offer (Duany et al., 2010). Homebuilders also market these homes because of increased profitability. Market forces do not necessarily reflect the want of consumers so much as conventional perceptions around homeownership. Therefore, it is reasonable to expect that the development industry would change course if resources were spent to alter perceptions around home homeownership to include high density housing such as condominiums and terraced houses (Duany et al., 2010).

In addition, these low-density communities go against the smart growth aspirations stated in both Vaughan's Official Plan and the *Growth Plan for the Greater Golden Horseshoe.* For example, throughout Section 2.1 of the city's official plan there is mention of the creation of mixed-use centres and compact and complete communities (City of Vaughan, 2010). However, these low-density dwellings do not the fit the definition of that. The communities being built are sub-divisions, meaning only residential and thus not mixed use. Additionally, transit accessibility is still an issue in these sub-divisions, meaning that they do not meet the requirements of a complete community.

3: Addressing the Weaknesses in Current Policy through Reform, New Legislative Mechanisms and Public Involvement

3.1 Expanding the Greenbelt and Fixed Urban Boundaries

It is evident from the above examples that current land-use legislation and plans do not adequately protect agricultural lands and farming communities. Therefore, there needs to be certain changes in environmental and land-use planning legislation that allow the goals set out in these documents to be achieved. One common solution is the expansion of the Greenbelt. This is essentially to "make-up" for lost agricultural and ecologically sensitive lands to industrial and residential development. Another proposed solution is the implementation of fixed urban boundaries to limit the expansion of urban centres outwards in unprotected agricultural and ecological areas.

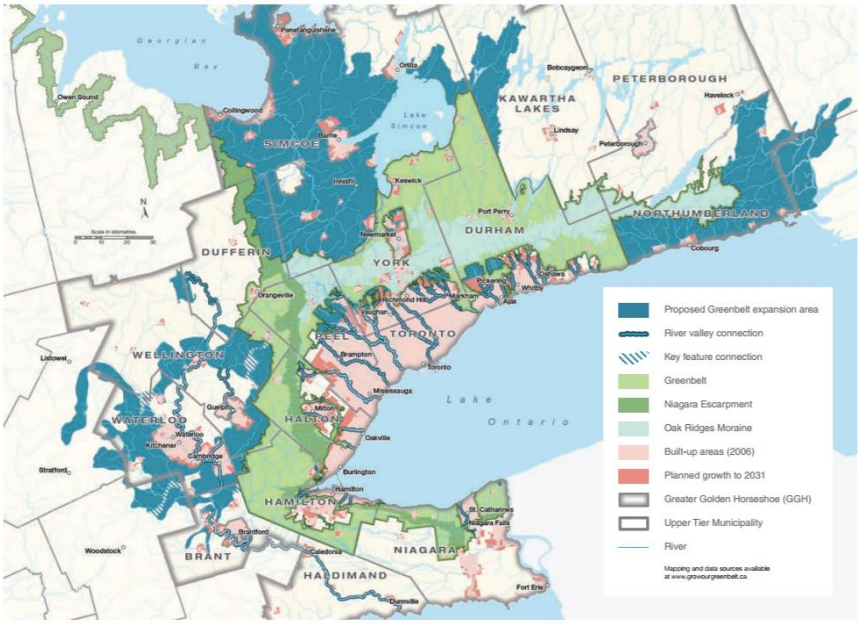
3.1.1 Greenbelt Expansion

While the expansion of the Greenbelt seems like a radical idea given the large area already protected (as suggested by Byran Tuckey, president of BILD (Taber, 2016)), the

examples provided above show that current protection mechanism allow for exceptions and boundary changes that developers can exploit. Therefore, the goals of an expanded Greenbelt would be to mitigate the loss of land from such activities. The expansion of the Greenbelt is already something that has occurred; though only once. In 2013, the provincial government included the 400-hectare Glenorchy Conservation Area (Loney, 2012). As such there is precedent for expansion and more importantly an apparent political willingness to do so.

This political willingness was demonstrated again in 2016 when the Province announced that it was considering expanding the boundaries of the Greenbelt to include 21 major river valleys and four parcels of land identified by Hamilton and the Region of Niagara (Taber, 2016). The proposed expansion would protect water systems that aid in contributing to the viability of farmland, as fresh water is critical to a healthy and thriving agricultural industry (Ballingall, 2015). The expansion would grow the Greenbelt by about 9000 hectares. Though a significant amount, it would not add much agricultural land to the Greenbelt overall.

However, there is a proposed greenbelt expansion known as the Blue-belt that would see the inclusion of more agricultural land – including the Oro Moraine and the Humber River headwaters – critical to farming operations in the south of the province (Growing the Greenbelt, 2016). The Blue-belt – currently only being championed by environmental groups and no major political party– could serve to better achieve the goals of conserving agriculturally sensitive lands as it would add 1.5 million acres of protected land to the greenbelt and would expand its boundaries to include lands (including farmlands) in Barrie, Collingwood and Waterloo (Ballingall, 2015). This would have the effect of protecting agricultural lands from leapfrog development. This is development occurring on lands north, east and west of the greenbelt or "outer-ring" (Tomalty & Komorowki, 2011).



The benefits from such an expansion are many. From a purely ecological perspective, the Blue-belt would protect water sources for future generations and would guard "wetlands, streams, seepage areas and springs" from urban expansion from nearby cities such as Barrie (Growing the Greenbelt, 2016). This in turn would sustain agricultural lands in the outer-ring while also preventing urban expansion unto farmlands (Growing the Greenbelt, 2016). Lastly, like the Greenbelt, the economic and ecological benefits such as supporting Ontario's growing agri-food industry and creating environmentally resilient communities are also present (Growing the Greenbelt, 2016).

However, development groups have spoken against any expansion of the Greenbelt and have repeatedly stated that conservation initiatives like the Greenbelt are contributing to higher housing costs by limiting the land available to build houses (Taber, 2016). Based on that logic it could be argued that since the Blue-belt region is expected to grow by almost a million by 2031, that limiting developable land would create housing shortages (Tomalty & Komorowki, 2011). This could be remedied by shifting to more dense housing in built-up areas of the region instead

of the current low-density, single-family model used; a topic that will be discussed further along (Tomalty & Komorowki, 2011).

3.1.2 Implementing Fixed Urban Boundaries

One of the most requested additions to the growth plan by environmental groups such as Environmental Defence (Shapero, 2016) and farm organizations such as the Ontario Federation of Agriculture (Ontario Federation of Agriculture, 2016) has been the inclusion of fixed municipal boundaries. Such an inclusion would limit urban growth to lands approved for growth to 2041 and would extend protection in law to prime – class 1 to 4 – agricultural lands in the Greater Golden Horseshoe (GGH) (Shapero, 2016), protection for an extra 62% of Vaughan's current farmlands (City of Vaughan, 2008). It would also limit the re-designation of greenbelt lands to specific dates, in this case during 10-year reviews of growth plans. This would prevent re-designation through ministerial orders. The City of Waterloo, a similarly sized city, has included in their official plan wording that limits the expansion of urban boundaries into protected countryside in section 3.12 (City of Waterloo, 2016).

Such a measure would limit sprawl as well as create continuity of land between habitats and farming communities (Tomalty & Komorowki, 2011). Additionally, fixed boundaries create a buffer between residents and farming operation, a concern for many farmers who worry about complaints from nearby residences (Swail, 2014). Furthermore, while the implementation of fixed boundaries to 2041 growth areas would have limited conservation effects within Vaughan, it would still protect white-belt lands within the municipality and as such would benefit the city by providing ecological services like climate regulation, storm water management and much more (Swail, 2015), though considerably less than a region such as Caledon or Hamilton whose boundaries contain many more hectares of agricultural land.

The biggest opposition to such a measure would be again from development groups who have long argued that the conservation of lands is driving up housing prices and are critical of the province's attempt to shift from sub-divisions to more mixed communities centred around services such as health care and transit (Benzie, 2017). Besides this, the province recently decided against freezing urban boundary expansions in the most recent growth plan review (Queen, 2017), thus preventing widespread adoption. The other major planning authority, Vaughan city council, could decide to implement fixed boundaries by updating their official plan during a 5-year review – compared to 10 years for the provincial growth plan – though that would require a less developer slanted council to be elected or a significant shift in policy from the current council.

3.2 Densification, Smart Growth and Housing Changes

A major roadblock to the solution of expanding the Greenbelt and having fixed municipal boundaries would be the push-back from developers who would feel such moves would limit the construction opportunities for themselves and would in turn create a housing shortage for the region and its residents. This would have the effect of increasing housing and residential prices according to BILD president, Byran Tuckey (Taber, 2016). However, construction and housing opportunities are still present, though it will take a willingness on the part of home builders to adapt.

As stated in the previous section, there will still be lands left for development including lands set aside for municipal growth by 2041, as well as agricultural lands not deemed prime – class 5 to 7 farmland (Shapero, 2016), an estimated 30,000 hectares of land in the GGH (Swail, 2015). There is also plenty of available developable land in the built-up area of the GGH

including unused lots and former industrial sites (Swail, 2015). As such, opportunities to build houses are still present.

As for claims stating that such an allocation of land is not enough to develop the adequate amount of housing needed to meet demand, it is important to understand when developers use such language they mean there is not enough land to develop the required number of single family detached houses. This is evident from the comments made by Mr. Tucker of BILD with regards to the proposed greenbelt expansion (Taber, 2016). However, the province can meet the housing demand though it will require a shift from single detached houses and sub-divisions to multi-storey buildings and mixed-use neighbourhoods with higher density; uncompromised by "take-outs".

Developers are critical of denser housing, citing "market forces" showing that people prefer single-family detached homes but many including Blais (2014) and Environmental Defense contest this, arguing that the real motivation behind low-density housing is the development charges of municipalities. Development charges are tolls paid to the city by developers for the cost of installing infrastructure such as hydro and roads. The toll is a one-time average fee and therein lies the problem. Higher density housing, while requiring less infrastructure to be viable, pays the same toll as low-density housing, which is much more inefficient and costs municipalities more to maintain (Blais, 2014). Essentially, development charges have led to the creation of a perverse situation in which developers are incentivised to build inefficient low-density housing because they are subsidized by the city (Blais, 2014)

3.2.1 Density Targets

"Take-outs" of cemeteries, employment areas, and various provincial infrastructure – hydro corridors and the like – from the density calculations has resulted in densities closer to 25+ persons/jobs per hectare, when all land in any given municipality is considered (The Neptis Foundation, 2015). Such a low density is insufficient to combat sprawl. A straightforward way to rectify this is would be to remove the "take-out" provisions, so that the target density is a true 80+ persons/jobs per hectare. This, in conjunction with added legislative penalties for missing density targets, would steer developers to build appropriate housing to meet targets instead of continuing to build housing not too dis-similar from those that were built 40 to 50 years ago (Blais, 2014). A density revision such as this is entirely possible as the density target has been recently increased due to issues related to transit frequency. For example, the original 50+ persons/jobs target was suggested by the province because that number was the minimum required to support basic transit service (Allen & Campsie, 2013). As the weaknesses of that target became apparent – its inability to support frequent service or rapid transit service and much lower than the 60+ density target of the smaller metro Calgary area (Allen & Campsie, 2013) – the province chose to increase the density target to 80+. This demonstrates a willingness on the part of the province to change density targets as more data is gathered and as understandings change.

3.2.2 Housing and Smart Growth Implementation

One common argument against higher density requirements is that consumers want low-density housing. That is true according to recent housing data (Hemson Consulting Ltd., 2012) as well as the backlash seen from residents when the province of Ontario was first proposing density targets that would encourage construction of multi-storey buildings in their communities

(The Neptis Foundation, 2015). In fact, this backlash and fervent desire for single family detached housing is why (sub)urban street patterns are roughly the same now as they were previously, despite the smart growth language found in both the provincial *Growth Plan* and Vaughan's *Official Plan* (Blais, 2014).

This desire for low-density housing is constructed and promoted by developers and home builders to maximize profits (Duany et al., 2010). As mentioned, low-density (sub)urban housing and communities are subsidised by municipalities who charge developers a nominal fee for infrastructure installation. This fee fails to cover the complete cost of installation, maintenance and externalities such as the effects of air pollution to the community (Blais, 2014). Therefore, market forces are not really the reason for continuing low-density housing but rather marketing and promotion. Therefore, one can increase demand for and change perceptions of higher density housing by advertising such residences positively and by preventing biased market research aimed at making sub-divisions seems more desirable then they really are (Duany et al., 2010). For example, older urban neighbourhoods are shown to be outperforming recent (sub)urban builds in terms of desirability among young adults, though homebuilders continue to maintain that homebuyers want low-density designs in suburbs (Duany et al., 2010).

There has been a shift, however, as mixed-use neighbourhoods located within the built-up areas of the GGH, now oftentimes market transit accessibility and proximity to shopping and entertainment hubs to sell high-density housing. In areas of Toronto, including its inner sub(urbs) such as North York, this has worked extremely well, an example being housing and commercial developments around Don Mills TTC Station. This marketing strategy could be replicated in highly urbanized (sub)urbs such as Vaughan to promote higher density housing, be it multi-story condominiums or highly dense row houses. However, the city of Vaughan must implement a

series of changes to compel developers to promote higher-density housing. Firstly, council must remedy the issue of development charges favouring low-density housing. Instead of an averaged fee, Vaughan should include the full cost of infrastructure installation within development charges. Additionally, Vaughan should pass the cost of increased maintenance onto the developers or residents who create or live in low-density housing. These actions remove the cost advantage unfairly given to builders of low-density housing and highlight the efficiency of higher-density communities. This will lead to homebuilders constructing more compact housing and communities given the cost savings, which in turn will compel those homebuilders to promote high-density housing as it will be in their economic interest to do so (Blais, 2014).

3.3 Policy Reforms regarding Infrastructure Development

3.3.1 Aggregate Mining in the Province

Currently, aggregate mining is permitted in the greenbelt on land not deemed significant for its ecological and hydrological features by both the *Greenbelt Plan* and the *Provincial Policy Statement, 2014*. This has meant that much aggregate extraction occurs on land previously deemed agricultural. While this is problematic - as it allows for the destruction of protected land for the purposes of mining - in many cases these former extraction sites do not have to be rehabilitated to their former agricultural uses. This means that there is a net-loss in terms of available agricultural lands.

It is obvious that completely closing the aggregate mining loophole that allows operations in the greenbelt – including the Niagara Escarpment– would prove extremely difficult because of how crucial it is to various sectors and the province itself. Aggregate is needed for all manner of construction and preventing its extraction would have large economic ramifications (Paikin,

2011). As such, there is no political will among any of the major parties to close this loophole, though Andrea Horwath, leader of the Ontario NDP, did speak out against the proposed Mega Quarry in Melancthon Township (Borthwick, 2011). Use of recycled aggregates has been proposed by the Ministry of Natural Resources in its State of the Aggregate Resource in Ontario Study (SAROS) but implementation has been slow given the associated costs of recycling gravel and cheap virgin gravel is. The province has imposed a fee to virgin gravel known as the Management of Abandoned Aggregate Properties Program (MAAP) fee – currently set 11.5 cents per ton – that increases the price of virgin aggregate but it's so low that there is a trivial difference between the prices of virgin and recycled gravel (The Ontario Aggregate Resources Corporation, 2016). However, the province could increase that fee – they have previously more than doubled it in the past (The Ontario Aggregate Resources Corporation, 2016) – thereby making the cheaper recycled aggregates more attractive to the construction sector. Currently though, little is being done to promote recycled aggregates. The province has not even implemented suggestions such as the creation of an inventory for recycling activity and available material nor has it established provincial targets for the use of recycled aggregates (Binstock and Carter-Whitney, 2011).

Hence, the best and most practical solution to mining operations in the greenbelt is increased environmental regulations. As agricultural lands are typically chosen for aggregate mining because of their cheap costs – Farmland located in the Greenbelt have lost 70% of their value (Murray, 2011) – and because of their proximity to the cities where aggregate is used (Binstock and Carter-Whitney, 2011), it is unlikely that the province will propose moving aggregate mining operations away from farmland, especially if there is a possibility that it will hurt Ontario's growth. That said, strengthening legislative protections can still be useful in

limiting the amount of farmland lost to the aggregate industry. Currently prime agricultural land – including specialty crop areas – can be developed for mining without needing to return the land to its previous state if it is deemed unfeasible by the Ministry of Environment and Climate Change (2016) following an environmental assessment (Ontario's Ministry of Municipal Affairs and Housing, 2017). A solution would be to prohibit mining on locations that could not be converted back to their original agricultural uses within a time frame agreed upon by farmers, their communities and the proponent. This allows continued mining in the greenbelt to meet the provinces demands and minimizes lasting mining impacts.

As previously mentioned though, rehabilitation could take many decades and it is entirely possible that aggregate extraction companies might become insolvent before they complete their duty to return the lands to their former uses. A solution to that would be the creation of a trust that would collect funds for rehabilitation. Like the futures trust implemented by the *Crown Forest Sustainability Act*, 1994 (CFSA), the trust would be funded by fees levied on all licence holders and administered by an arm's length body (Environmental Commissioner of Ontario, 2014). Appropriate measures and controls would need to be implemented to enforce the collection of fees. This would prevent a scenario in which license holders fail to give payment, which was common with the futures trust implemented by the CFSA (Environmental Commissioner of Ontario, 2014).

Currently, Ontario has a similar mechanism to a trust known as the Abandoned Pits & Quarries Rehabilitation Fund dedicated to rehabilitating former aggregate sites. This is funded by the above mentioned MAAP fee and is administered by The Ontario Aggregate Resources Corporation. The main issue with this program is the amount of money collected and the amount of land rehabilitated. Since the implementation of the fee in 1990, the program has collected

approximately $9.8 million to rehabilitate 720 hectares of land (The Ontario Aggregate Resources Corporation, 2016). That is a relatively low sum given the amount of time passed – 30 years in 2020 – and considering the thousands of hectares of land used to source aggregate. Presently, more land is being used to mine aggregate than is rehabilitated (The Ontario Aggregate Resources Corporation, 2016). A fix to this would be to increase fees to allow for rehabilitated lands to match the amount of lands lost to aggregate or come as close to that total as possible given the economics of such an undertaking. Finding the optimal fee will require more studies and consultation with various stakeholders. Doing so will allow for quicker and broader rehabilitation of former aggregate sites. Of course, this is purely a mitigatory measure and the primary objective should be to prevent the loss of farmland to aggregate mining through legislation and through the use of recycled aggregates and its alternatives as they become cheaper to produce.

3.3.2 Infrastructure Development Reforms

As previously mentioned, development of infrastructure is still allowed under the *Greenbelt Plan* if it is for reasons related to the social and economic aims of the Greenbelt and more importantly of the growth plan. However, as this paper has stated these benefits are oftentimes questionable. For example, this new proposed 400 series highway is said to alleviate congestion in the Greater Toronto Area, but the reality is more complex than that. While this new highway would alleviate congestions in the short run by transferring a fraction of current drivers from Southern Ontario's other crowded highways, in the long run this new highway will be filled because of the extremely rapid growth rate in Milton and Vaughan (Javed, 2016). Therefore, there are no benefits in the long-term and the problem this highway was supposed to address will reappear.

A better strategy would be to transfer the money designated for these infrastructure projects such as additional highways and invest in better quality and expanded transit instead. This would result in less drivers as many would opt for the cheaper transit option and that in turn would result in less congestion (Sustainable Prosperity, 2013). Also, because many of these projects are approved due to their supposed social and economic benefits, it would also be recommended that the province look at long-term benefits more thoroughly as many projects have significantly diminished benefits in the long-term. This will require more in-depth environmental impact assessments as currently it omits many crucial factors critical to society and the economy. For example, the current environmental assessment process does not account for externalities such as the added cost and health impacts from the increased air pollution emanating from cars (Blais, 2014). Furthermore, farmers have complained that the current assessment process does not account for agricultural lands and communities other than on a superficial level and oftentimes ignores how farms are reliant on a complex web of relationships between land, local economies and infrastructure (Ontario Federation of Agriculture, 2015). An example of this is how Agriculture Impact Assessments (AIAs) in the Greater Golden Horseshoe are done less frequently and less stringently than other impact assessments (Ontario Federation of Agriculture, 2015).

It should be stated that this critique of large scale infrastructure projects such as the GTA West Corridor highway does not mean stopping all infrastructure projects. Projects related to the maintenance of current infrastructure in the Greenbelt as well as infrastructure projects that contribute to the viability of farmers and their lands should always be allowed as they are in line with the goals of the *Greenbelt Plan* and *Greenbelt Act, 2005*. In fact, the Ontario Federation of Agriculture (2016) has even said in their suggestions for the 10-year review that modifications to

current roads serving farming communities are needed to better serve farming equipment. Therefore, it would be unwise to remove the section within the growth plan dealing with the issue of infrastructure construction inside the Greenbelt.

3.4 Increasing Public Involvement, Awareness and Innovation in the Planning and Conservation Process.

A large part of why conservation legislation exists and thrives is because of public outcry and involvement, in conjunction with scientific findings and understandings (Sandberg, Wekerle & Gilbert, 2013). Such was the case when a group of concerned residents armed with recent findings about the Niagara escarpment and its seasonal residence/aggregate developments, pushed political forces to pass *The Niagara Escarpment Planning and Development Act, 1990* and the *Niagara Escarpment Plan* – Canada's first large scale environmental land-use strategy (Niagara Escarpment Commission, 2015). This trend continued with legislative protections for the Oak Ridges Moraine and eventually the creation of Ontario's Greenbelt. As such, it is important to maintain public awareness of and public involvement with ecological and agricultural lands in the face of rapid (sub)urbanization to allow for the continued and expanded protection of significant vulnerable lands.

However, looking at the history of public participation with conservation policy inside Southern Ontario, there are multiple instances of conservation advocates, through flawed understanding of what constitutes "sprawl" and "sustainability", pursuing actions detrimental to the very lands they aim to protect. This happens through the propagation of "Green Sprawl", the "Greenwashing" of developments or the exclusion of working and marginalized groups within the conservation movement (Cadieux & Taylor, 2013). Therefore, to strengthen conservation efforts within and outside the Greenbelt, there needs to be shifts in current understandings and

methods used by environmental activists and groups that have lead to stagnating conservation efforts and negative environmental effects.

3.4.1 Understandings of Nature and Green Sprawl

Green sprawl is defined by the creation of (ex)urban communities on ecological and/or agricultural lands, whose housing – large estate properties – and lifestyle patterns mirror (sub)urban ones (Cadieux & Taylor, 2013). However, unlike the typical reasons for (sub)urban migration which is tied to the desire for more space in terms of housing and land, green sprawl is the result of individuals who move because of their desire to have "nature where they live". Often these (ex)urban individuals do not view their actions as contributing to sprawl and might even consider themselves as "anti-sprawl" – despite criticizing the aesthetics of high density residences used to combat said sprawl – or "environmentally conscious". However, the reality of the matter is that their desire to be surrounded by "nature" is in fact contributing to its loss (Cadieux & Taylor, 2013).

The main culprit for this seeming contradiction between desired intention and effect is the flawed understandings of nature and landscape. In many cases, "nature" is often simply equated to the presence of greenery and vegetation without regard for ecosystem functions and the various interconnected parts that make it work. Therefore, many (ex)urbanites might not see any harm in building an estate on top of sensitive lands, if the green aesthetics surrounding the property are intact. However, as land is lost to housing, ecological functions decrease and as the number of houses increases so do the cumulative damages. Therefore, it is imperative to broaden understandings of nature to include more than just aesthetics.

To do so will require significant effort as aesthetical understanding of nature is engrained through cultural descriptions in books, film and even the billboards to sell housing, while knowledge of ecological functions and cumulative damages are not. Therefore, it will take conversations with ex(urban) communities to determine the culture of how (ex)urbanites inhabit their environment and understand landscape. This would help to develop the appropriate vehicle to pass along information and data regarding the harmful effects of (ex)urban settlements. Essentially, a community by community approach is needed to explain the damages caused by (ex)burbs using their "language" or cultural understandings.

A typical environmental outreach program will involve a conservation group or non-profit working with the government to implement a plan already developed, demonstrating the importance of ecological sites, awareness of the lands around them and field trips (Conservation Ontario, 2013). However, to more effectively address the challenges of current attitudes, the outreach plan will need to be developed with the community itself. Designing the plan will involve public consultation through meetings and questionnaires to identify key areas of concerns and build a program around that – e.g. determining sites on which to focus to garner the most community support (Jacobson, McDuff & Monroe, 2015). This process will also include getting community leaders visibly involved to demonstrate the "localness" of the environmental initiative (Jacobson, McDuff & Monroe, 2015), thereby, creating community attachment to the program itself.

3.4.2 Greenwashing, Sustainability and Exclusion

Another problem facing the conservation community that threatens to weaken conservation legislation is exclusion of certain economic and marginalized groups. The framework of the greenbelt was built on a "rhetoric of inclusivity"; to allow for a mix of voices

from differing socio-economic backgrounds to develop and share ideas that contribute to the continued sustainability – sustainability referring to the continued functions of ecological, economic and social processes over generations (Gregory et al., 2012; Cadieux et al., 2013). This was designed to avoid situations like those in the UK and South Korean greenbelts, whose initial functions and roles have become less relevant given changing populations and realities (Amati & Taylor, 2010). However, there is little evidence of this inclusivity in practise.

In fact, there is overwhelming evidence of exclusion. Take for example the Oak Ridges Moraine. In the book, Oak Ridges Moraine Battles, the authors mention that lobbying on behalf of the moraine by wealthier white residents was successful in contrast to the failed attempts by working class and racialized residents of Toronto to lobby for more affordable housing (Sandberg, Wekerle & Gilbert, 2013). Similarly, areas of the moraine now house luxury clubs which are inaccessible to those of working class backgrounds as the costs are too high. In addition, much of the greenbelt is not transit accessible or transit is otherwise infrequent or inconsistent. This, makes access more difficult for lower-income individuals – i.e. students – and families who lack automobiles, not to mention those with physical issues that prevent them from driving. Yet the language of inclusivity is found inside the greenbelt and moraine legislation whose goals are to ensure all Ontarians – regardless of background – benefit from the moraine and its functions.

Despite this failure to include all residents in the conservation process – thereby compromising sustainability, as social inclusion is one aspect of that – many former activists including Toronto Counsellor Glenn De Baeremaeker have moved on and become boosters on behalf of certain development projects (Sandberg, Wekerle & Gilbert, 2013). Their involvement is supposed to signify the “greenness” of a given project. This could be considered greenwashing

– deceptive promotion of products and services as environmentally conscious or friendly – as many projects while ecologically conscious might not be sustainable if economic and social concerns are not addressed. For example, many have championed the harbourfront redevelopment in Toronto as being sustainable or "green", but given the social ramifications – gentrification of nearby neighbourhoods – it cannot be truly sustainable (Bunce, 2009).

To solve these exclusionary actions will require the Province and environmentalists to do what is written in Ontario's environmental legislation and that is to engage with communities. This will involve going into these communities and talking with residents to gauge their stakes and concerns when it comes to environmental and/or planning issues. Doing so will help strengthen environmental legislation, as having increased support from these communities makes legislation more resilient against attempts by developers and potential future provincial governments to weaken said legislation to allow more development on protected lands.

4. Strengthening Urban Agriculture within Vaughan

Urban agriculture is often promoted by municipalities to "green" their city and increase local food production. Some cities even view urban agriculture as a poverty alleviating measure. In the case of Vaughan, it has even been proposed as a solution for their agricultural land loss (City of Vaughan, 2008). However, urban agriculture cannot substitute for the loss of farmlands in the province – not with the current rate at which agricultural lands are being converted. Instead the adoption of urban agriculture combined with environmental legislative reforms – designed to increase protection of agricultural lands – have the best chance of ensuring the continuation of farming practises and communities within rapidly (sub)urbanizing areas of the

province, including Vaughan. However, this will take changes on the part of Vaughan to meet the requirements to scale up urban agriculture in the city and avoid many of the pitfalls.

4.1 Introduction to Urban Agriculture

While not particularly well known or necessarily referred to as such, urban agriculture – also known as urban farming or urban gardens – is practised globally and shares many of the same methods and challenges from location to location. Characterized by its unconventional use of space situated in highly urbanized areas, urban farming is typically known for its low yield crop cultivation – small animal grazing in certain cases, if allowed – whose operation is conducted and managed by vulnerable and marginalized groups or peoples. In many cases, urban farming is used to supplement the income or diet of said vulnerable and marginalized groups in response to the failures of the state and market to provide adequate access to healthy foods and employment (Maxwell, 1995).

However, those descriptors are becoming less universal especially in the context of Vaughan and southern Ontario. While the practise is obviously still located within urban centres and still involves the growing of crops in much smaller volumes than conventional agriculture; there has been a widening of the types of individuals involved. Urban farmers no longer only comprise marginalized peoples. There are now many participating in the practise solely for monetary, subsistence or supplementary reasons and many partake in the practise for nutritional and environmental benefits (Guthman, 2008). Additionally, no longer are the primary buyers of urban grown produce marginalized. Many buyers are affluent and buy from urban farmers to acquire produce that was cultivated in an environmentally conscious manner and lacking pesticides (Guthman, 2008). These produces are sold at a hefty premium as growers now heavily target the above mentioned affluent buyers more than buyers of modest means.

4.1.1 Benefits of Urban Agriculture

There are multiple benefits to having a thriving urban agricultural scene. The first has to do with food accessibility and food justice. The practise of urban agriculture oftentimes appears in communities that have less access to nutritional foods because of economic or political policy. From a Canadian standpoint, urban agriculture became prevalent as a response to the rolling back of government welfare programs in the 1980s under neo-liberal administrations of that era, including Canadian Prime Minister Mulroney's Progressive Conservative administration. As these governments moved away from the Keynesian welfare state model – focusing more on removing barriers to business by implementing trade deals such as the North American Free Trade Agreement (NAFTA) – they essentially divested themselves of social programs aiding low-income, racialized and marginalized groups (McClintock, 2014). Various charities and other social movements stepped in to help those adversely impacted by the changes in policy, and that includes movements geared towards food justice and food accessibility.

Within the near-by city of Toronto, urban agriculture re-emerged in the 1990s with the goal of specifically helping disenfranchised individuals. Examples of this are the Toronto Food Policy Council (TFPC) – a sub-committee of the City of Toronto Board of Health created in 1990 whose aims are to increase food accessibility in the city by pushing city and provincial officials to alter or introduce planning or policy guidelines geared towards tackling food inequality (Cosgrove, 2000) – and the Afri-Can FoodBasket (AFB). AFB provides a host of food related services specifically targeting marginalized communities who had been neglected for decades and were vulnerable to the policy changes proposed (Wekerle & Classens, 2015). They are committed to fighting food deserts and providing skills to local communities to grow their own produce. Food deserts affect 51% of Torontonians – many of whom are low-income

and racialized – according to the Martin Prosperty Insitutue (2010). AFB provides such communities, including the nearby Jane and Finch neighbourhood, access to healthy produce through low prices or for free which would otherwise be prohibitively expensive or too far away to acquire. They also engage with the community to provide the skills to create their own urban garden. This has been vital for many immigrant individuals who want to access produce native to their country of origin but cannot afford the continuously growing prices of such products at their closest grocery store or speciality foods sellers (Wekerle & Classens, 2015).

Other important benefits of urban agriculture are the production of local foods and less environmentally harmful farming methods. After the signing of NAFTA, many movements arose to promote localism in food production. As produce prices were driven down by global competition, forcing many independent and family farms to sell to larger farming entities, groups and communities sprang up in resistance to the consolidation and increasing industrialization of food production (Baker, 2013). These groups include those affiliated with and part of the Toronto Urban Growers network. These individuals engage in urban farming over concerns related to the unsustainability of industrial agriculture. They criticize the excessive use of petro-chemicals and pesticides in the production of food, and prefer using more "organic" solutions to issues of fertilization and pest control (Manning, 2004).

This strategy of producing chemical-free – or reduced compared to industrial agriculture – fruits and vegetables and marketing them as "organic" eventually led to a group of consumers distinct from the ones mentioned above. Less focused on the environmental sustainability and social justice aspects of urban farming, they were more attracted to the health benefits of such an agricultural cultivation process (Guthman, 2008). These consumers were more affluent than

other individuals involved with urban agriculture and they have ballooned in size as western society became more conscious about the ramifications of food they ate.

Additional benefits include enhanced city greening and a bevy of economic benefits for the local populace such as job creation – including new farming positions – and increased cash flow into local communities and businesses. Increased greening is instrumental in fighting green sprawl as one of the major contributors to (ex)burb migration is the belief that (sub)urban communities lack observable "nature" – greenery and vegetation. As for the economic benefits, governments are always looking for opportunities to create new business that will fuel job creation. Urban agriculture has the potential to do so with the correct investment and support and can even contribute to the economically vital agro-business sector as well as create and/or expand farming communities – a primary goal of the growth plan as stated in Section 4.2.6.7. (Ontario's Ministry of Infrastructure, 2017)

4.1.2 Status of Urban Agriculture in Vaughan

The earliest examples of urban agriculture in the region were from the Haudenonshonee or Iroquoian people who grew staples such as corn, beans and squash in or near established settlements (Bordinski & Johnson, 2008). After British conquest, urban agriculture wasn't much of a concern for Vaughan as it was primarily comprised of rural townships inhabited by farmers and their families. This began to change after the 1970s as Vaughan amalgamated the various townships and began (sub)urbanizing. As more and more agricultural lands were converted for housing and commercial uses, many began to recognize the effects of such losses including diminished food accessibility. Recently there has been a shift to include and promote urban agriculture within Vaughan.

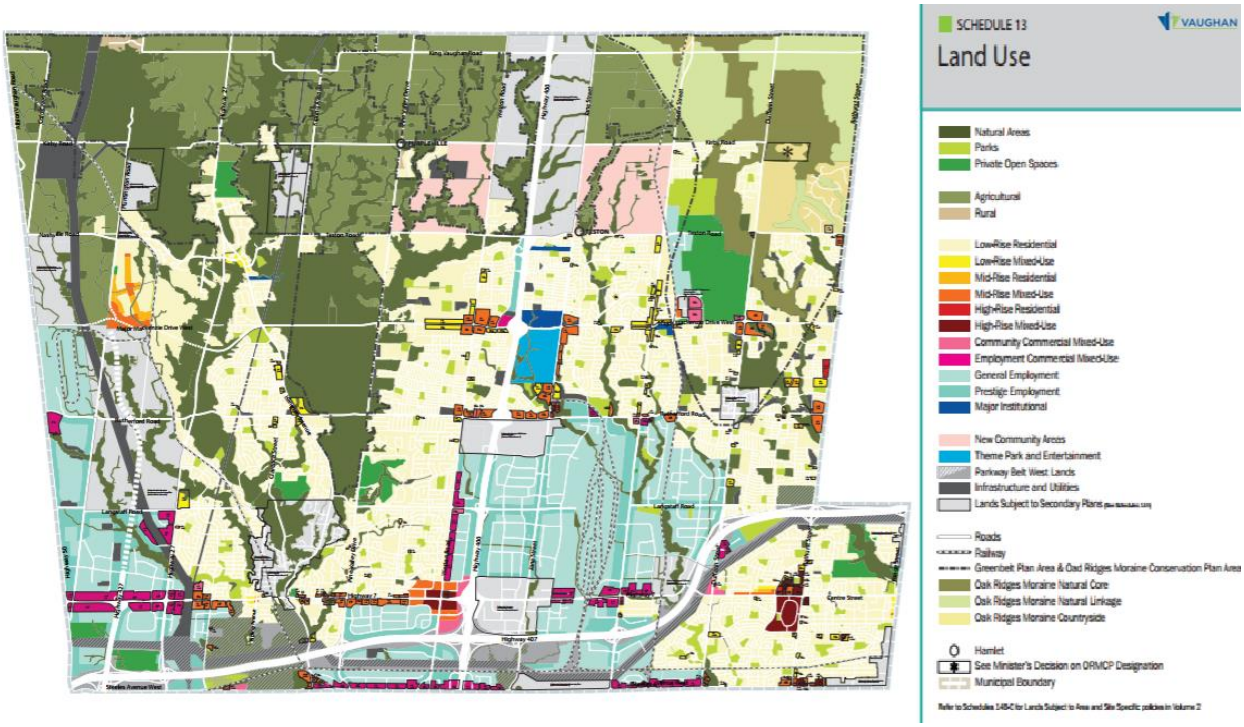
The city's most recent official plan recognizes urban agriculture as a possible source of local food production as well as a having the potential of generating local economic benefits (City of Vaughan, 2010). Furthermore, city councillors such as Sandra Yeung Racco have pushed for the City-owned MacMillan Farm to be converted into a 10-hectare urban agricultural parkland complete with garden plots, food markets and trails leading into lands administered by the Nature Conservancy of Canada (Rocco, 2015). Additionally, Vaughan has taken steps to increase the amount of community gardens in the city by providing lands and creating gardening policies, not to mention the formation of a seed bank where residents can deposit as well as retrieve seeds for their gardens (City of Vaughan, 2017). Despite this growing support, Vaughan currently only has 3 community gardens – Sugarbush Heritage Park, Growing to Give Community Garden and the Michael Cranny House (City of Vaughan, 2017) – with a potential fourth one if the urban agricultural parkland is approved. As such, there is still much to do in terms of growing urban agriculture within Vaughan and that will require the city to alter its land-use policies.

4.2 How to Support Urban Agriculture in Vaughan

As mentioned above, Vaughan was predominantly farming communities for most of its existence. This has meant the city began addressing the topic of urban agriculture much later than say its neighbour Toronto, who saw their urban farming movement begin in the 1970s. While this puts Vaughan's own urban farming movement and infrastructure farther behind similar movements, it also allows Vaughan to examine other North American cities to find out what works and what doesn't. When examining these cities – Philadelphia, Toronto, New York – many of the same planning issues when it comes to the scaling of urban agriculture reappear.

And, the first and foremost planning issue present in all these cities is that of zoning and land availability.

4.2.1 Creation of Urban Agricultural Zones and Increasing Land Availability



The major constrains of urban agriculture in Vaughan – like other North American cities – is related to land availability and zoning. This is mainly due to Vaughan and English-speaking North America in general adopting British land-use planning practises through decades of direct and later in-direct rule or influence. The major practise taken from the British is the use of zoning land for distinct uses – residential, industrial, agricultural, and so forth. This practise was heavily shaped by what was happening in England at the turn of the 20th century. Heavy industrialization in cities such as Birmingham and London, combined with overcrowding – including the presence of livestock – had resulted in increased pollution, prevalence of diseases such as cholera and the creation of slums (Omolo-Okalebo et al., 2010). The British, influenced

by the concept of the garden city first theorized by Ebanezer Howard, began segmenting land by use to prevent pollution and disease (Omolo-Okalebo et al., 2010). This was later exported to its colonies – with added extreme racial connotations – and much of the English-speaking world (Omolo-Okalebo et al., 2010).

With regards to urban agriculture, the implementation of these practises meant that any form of agriculture was removed from residential and industrial centres to the outer fringes. Vaughan was no exception. Referring to a land-use map of Vaughan – see chart in section 4.2.1 – you can see how commercial centres are at the centre of the city, with residences comprising the middle ring and the agricultural belt located at the outer fringes. This combined with vague and aspirational mentions of urban agriculture in the city's official plan has meant there is a policy and legislative vacuum when it comes to growing and supporting urban agriculture. The surest way to fill this vacuum is through the creation of urban agricultural zoning designations, like what is used in Philadelphia (MacRae et al., 2012). Doing so will provide not only political legitimacy to the practise but also remove any ambiguity to where urban agriculture is allowed (Meenar et al., 2017).

Currently, urban agriculture is officially practised in 3 municipally sanctioned sites – Sugarbush Heritage Park, Growing to Give Community Garden and the Michael Cranny House (City of Vaughan, 2017) – and informally elsewhere i.e. a residence's backyard. This limits urban farming to private homeowners and a small fraction of the public who can register a plot in the available gardens. Creation of new urban farming zones – specifically in underutilized city-owned spaces – allows for more land to be used for urban agriculture and increases the total amount of potential participants (Meenar et al., 2017). Additionally, if the city were to create these zones in areas where informal urban agriculture is taking place – for example parks and

road verges – it would provide municipal protection. The result of this would be increased interest among the community as they would be more comfortable contributing to the gardens knowing they weren't in violation of city by-laws (Meenar et al., 2017). Lastly, many of these informal urban gardens are in marginalized areas, legitimizing the practise in these locations will aid in the growth of urban agriculture and in turn provide more fresh produce of the community (Meenar, 2017). However, zoning and land availability is only one component of scaling urban agriculture within the city. There are many potential pitfalls to avoid so as to grow the practise as well as make the benefits accessible for all.

4.2.2 Potential Pitfall of Urban Agriculture and their Solutions

Many have criticized urban agriculture as being part of the neo-liberal process – defined in this case as a set of economic ideas and policies that includes the privatization of public resources and spaces, minimization of labour costs, reductions of public expenditures, the elimination of regulations seen as unfriendly to business, and the displacement of governance responsibilities away from the nation-state (Guthman, 2008). The biggest criticism against urban farming is that it serves as flanking for government withdrawal from social welfare programs and entitlements. This is understandable as the establishment of many urban garden programs was the result of governments no longer investing in food programs aimed at increasing accessibility to healthy foods. In many ways, urban farming programs essentially exist to fill the gap left behind by state divestment (Guthman, 2008). However, Vaughan doesn't necessarily need to be removed from urban agriculture and nor should they be. Outside of the legislative and planning issues mentioned above, the city can also aid urban agriculture by providing incentives in the form of lower taxes for lands being used as urban farms/gardens – specifically on formerly

vacant or underutilized lands that generated little to no tax revenue – as well as provide long-term below market leases to urban farming organizations.

In the case of taxes, reducing some or all of the property taxes would remove a huge financial burden for urban farms. This is especially important when you consider the price of establishing and maintaining a farming operation – even a small one – particularly in its first year. A model for tax breaks that could be replicated by Vaughan is the Green Thumb program used in New York city. The program offers full property tax abatement if the urban farm registers with the city (Meenar et al., 2017). As for leases, one of the biggest issues when establishing an urban farming operation is finding low cost leases long enough to allow for a farm to established itself and engage with the community they are serving (Meenar et al., 2017). Vaughan providing long term leases on underutilized city lands would allow for urban agriculture operations to develop strong ties with community groups while promoting social and economic self-sufficiency. Examples of urban farming operations that were successful because of city leases include the Detroit Black Community Food Security Network's D-Town farm – who received a 10-year lease from the city of Detroit– and Philadelphia's (PA) Schuylkill River Park Community Garden (Meenar et al., 2017).

The removal of these financial hurdles would also aid in resolving another common issue with urban agriculture which is job creation. As many have pointed out the success of urban agricultural businesses is partly due to the number of unpaid volunteers (Specht et al., 2016). This means that jobs are not actually being created. Additionally, it has been documented that the few paid positions within the industry aren't necessarily well paying. Though Ontario's introduction of a living wage makes this less of a potential issue. Removing taxes and establishing cheaper long-term leases allows urban farming companies to have more financial

resources to pay workers and growth their operation. Especially if the city were to create grants for said types of businesses (MacRae et al., 2012). This will probably require oversight on the part of the city as companies could in theory exploit these incentives to increase profits without paying its workers; tying incentives to job creation is one way to addresses this.

Another criticism levied against urban agriculture has to do with how depoliticised it has become and how focused it is now on the concept of entrepreneurship and the scaling of production. As previously mentioned, many buyers of urban grown fruits and vegetables are those looking for "organic" foods and that segment is only growing. This popularity has resulted in a multitude of consequences. The first of which was the reduced emphasis on social and environmental justice in favour of the health benefits of "organic" fruits and vegetables. All this was done to better promote urban agriculture to a wider population. Many have referred to this as the "yuppie-zation" of the food movement and have spoke against this direction, arguing that it obscures the ultimate goals of the practise which is the equality of access to healthy and sustainable foods for everyone (Guthman, 2008). It has also been argued that focusing only on the "organic-ness" of urban food production would open the practise up to exploitation by various organizations who will use the food movement to push products at a mark-up. This has already happened with food producers using the label "organic" to sell food with increased prices – thereby contributing to the inaccessibility of food (Guthman, 2008).

The city can rectify this in a multitude of ways. As stated in the previous section, Vaughan should focus on legitimizing informal urban garden in marginalized communities by making these zone urban agricultural ones. In addition to increased food production and accessibility, this offers legislative protection and stability that is good for attracting community members to the practise as well as investment (Meenar et al., 2017). Secondly, it has been

recently observed by Meenar (2017) through an analysis examining the spatial connection between urban agriculture and equity, that urban agricultural organizations are often absent from the most marginalized communities. The city should identify their most vulnerable and food insecure neighbourhoods through a study and target their tax and lease incentives accordingly to help build local and community urban agricultural businesses in the area. Lastly, with regards to increasing food prices attributed to "organic" production, the city should recommend the implementation of progressive pricing on urban grown produce to keep food prices accessible for vulnerable individuals (Mcclintock, 2014).

5. Conclusion

As the city of Vaughan and the rest of Ontario experience a period of relatively high growth, it is important not to sacrifice lands needed for long-term human habitation for short-term gains – especially purely economic gains. While this might seem like common sense advice, the actions – deliberate or not – of developers, municipalities and the Government of Ontario demonstrates that it isn't. In fact, in the face of an expected population of 13.5 million by 2041, we are witnessing the conversion of agricultural lands needed to feed this growing province instead being used for housing, housing that will fail to absorb the expected population increase. This mismatch of priorities will have large social ramifications in the future including food accessibility and even worse housing affordability – not to mention the environmental consequence such as the impacts of climate change. Rectifying this will require environmental land-use legislation not compromised to appease development interests but rather purpose built to tackle the issues facing Ontario today. This includes increased protection for prime agricultural lands, diversity of housing types and focus on transit over car transportation. It will also involve engaging historically marginalized communities to include their understandings and

concerns in the legislative process as well as increasing investment and support for innovative strategies such as urban agriculture.

This large-scale shift in policy and behaviour will not be a straightforward or effortless process nor will it be a short one. It will take deliberate actions on the part of the province, its municipalities, development advocacy groups and companies as well as the many environmental and social groups committed to bringing positive and sustainable change. This will involve shifting decades old understandings of how governance, planning and outreach are done and that will cause discomfort for many organizations. Given the alternative of expanding (sub)urban areas that will dwarf and shrink available green space and farmland, some discomfort is a rather cheap price to pay. The biggest discomfort will be shouldered by the province whose relatively soft touch approach to development will need to be changed, including stricter density requirements and concentrated developable areas required to shift the province from unsustainable single family detached houses to more suitable types of residential developments such as mid-rise mixed-use developments.

As for the research conducted, given the rapid pace in which planning and construction in the province is going and changing, not every important topic on subject of agriculture and conservation could be covered. One aspect that would have been covered in-depth if the research were not constrained by time and the sake of brevity would have been green design, specifically, the incorporation of vertical farms into multi-storey constructions such as apartment buildings or condominiums. But, given that vertical farms are more of an architectural design issue and given the strong criticisms against their implementation, it felt best to leave the topic for another paper. Similarly, if time were not an issue, more interviews would have been conducted, especially with farmers in the area who, unfortunately, were unable to sit down for an interview given the time

of the year and their harvests. Overall though, this research accomplished its task of examining the strengths and weaknesses of current environmental legislation regarding farmland in Vaughan and the governments that enforce them, while also providing an in-depth analysis of proposed solutions – pulled from multiple sources and disciplines – that can be implemented to correct the errors in the current land conservation system.

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